

trailing bushes, through the superincumbent and long continued mass of snow.

We thus see that though a long continued mass of snow has much to do in marking a timber line, that line is precedent to the snowy mass. The primary cause is the gravitation of disintegrated rock—the movement of the hill top towards the sea. From the moment the mountain reaches its highest point it commences its downward march. The entire reduction of the highest to a level with the plain is but a question of time. The frost and rain and melting snow will do it all, and this reduction, bringing down not only the earth, but cold-loving plants to warmer levels, must continually change the aspects of vegetation, as well as perpetually vary the timber line.

In low hills as well as in high mountains the forces of gravitation are also at work. But the sides are seldom so steep as in the loftier hills—the rains do not gather with such force nor are the melting snows of near the same duration. There are sudden washes, but not the continuous roll of the earth to the bottom. In time they may exhibit the same phenomena of the disappearance of species from their summits as their loftier brethren; but the centuries here will gather much more slowly to produce a similar effect.

In conclusion we would say briefly that the “timber line” of high mountain tops results from the washing down of the earth from the higher elevations.

NOTES FROM UTAH.—*Corydalis Cascana*, Gray.—I have added two stations more to that of last year for this plant. One station is in American Fork Canon, 7,500 feet altitude; the other, above Silver Lake, at 11,000 feet altitude. It is difficult to secure good seed, because an insect infests the pods and destroys the seeds; but I have secured a small quantity. The bursting of the pods is interesting. They split at the end, and the segments coil up with such rapidity that the seeds are thrown three feet or more. I believe this plant has never been discovered north of Arizona before, and is rare there.

A remarkable monstrosity of *Ranunculus Cymbalaria* occurs here. The flowers (ten or twenty) are united in a half circle, making one large flower with ovaries arranged in a half moon and surrounded by from one to two hundred petals.

Dicentra uniflora, Kellogg.—This is not uncommon in City Creek Canon; but, unlike Coulter, I found leaves only with the exception of a single faded flower.

Streptanthus cordatus.—The petals are twice the sepals, and stems are often branched.

Vesicaria montana.—This occurs as far south as St. George.

I have a variety of *Arabis arcuata* with pods much wider at tip than at base. The siliques of *Lepidium Wrightii* are frequently hairy on the edge. The leaves of *Arabis Lyallii* are as often auricled as sagittate. *Capsella divaricata* has the appearance of an introduced plant at St. George, where it is very common.

The roots of *Stellaria Jamesiana* are thickened into a long series of tubers.

Vicia exigua occurs as far north as Holden (100 miles south of Salt Lake City.) It has not been reported further north than St. George before.

The stems of *Astragalus junceus* are very seldom "solitary." They usually grow in clumps of twenty to a hundred.

A. pictus var. *filifolius* is found at Frisco and Milford, the western border of Utah, one hundred miles north of St. George.

Cercocarpus ledifolius, var. *intricatus*.—I propose this name for Watson's *C. intricatus*, which cannot rank as a species, as Dr. Parry has shown already; but I think it deserves to rank as a variety and not as a "form" (Parry), because of the altitude at which it occurs, 6000 feet, and the apparent distinctness of the extreme forms. This is from 1 to 3 feet high, densely and intricately branched, usually depressed; leaves linear, 6 to 12 lines long, 1 line wide, very revolute, sparsely pubescent, flowers and fruit two and three times smaller than the typical form. Its present known range is from American Fork Canon to Cedar City. It appears to grow on rocks almost exclusively. Watson found it near the mouth of American Fork Canon, where it occurs in the extreme form only. Higher up it occurs more sparingly, and in less rocky places shows an insensible transition to *C. ledifolius*. I have found it as high as 11000 feet altitude, growing along with *Juniperus communis*, var. *humilis*, Eng. (*J. communis*, var. *alpinus* of most authors), several hundred feet above *Primula Parryi*, near *Synthyris pinnatifida*, *Ranunculus adoneus*, etc.; but its usual range is at about 6000 feet altitude.

Who described *Tellima tenella*? Watson gives it as of Hooker and Bentham (King's Exp. p. 95), Watson and Brewer give it as of Watson (Fl. Cal. V. I. p. 198), and Rothrock gives it as of Walp. (Wheeler Rep. p. 117). The Rocky Mountain *Cratægus*.—I have spent much time in studying this plant, and have collected a full suite of specimens, from the buds to the fruit. The leaves on branches which bear flowers are lanceolate or ovate lanceolate and acuminate, narrowly cuneate at base; other leaves vary from acuminate to barely acute, lanceolate to broadly oval, cuneate or tapering at base; petals orbicular, entire; calyx segments linear or linear-lanceolate usually with a broad base, purple, glandular ciliate; bracts filiform, purple, deciduous; thorns almost none, or abundant. *Ribes aureum* is abundant at St. George. There is a variety of it growing here that has yellow fruit and a disagreeable taste. I have *Ribes leptanthum*, var. *brachyanthum* from Frisco, as well as Lake Point. *Mentzelia levicaulis* occurs as far south as Frisco.

The fruit of *Cymopterus glaucus* is densely pubescent; stamens purple.

C. longipes is abundant at Juab, and occurs at Frisco.

I have another species of *Cymopterus* that appears to be new also.

The petals of *Orogenia linearifolia* are white. It blooms close to

snow in the early spring; is very evanescent. Within a few weeks after the plant appears, it has bloomed, fruited, dried up, and blown away, leaving no trace behind save a few seeds in the sand. I have the flowers from Scipio (30 miles north of Fillmore) and plenty of good fruit from City Creek Canon where it is common. The leaves are frequently 6 lines wide. *Peucedanum simplex* is occasionally branched as well as leafy. The fruit is never "orbicular" in any Utah specimens I have seen. It is abundant here.

P. millefolium has yellow flowers, not "white." It occurs in the Wasatch and south to Frisco.

The fruit of *P. villosum* I have in fine condition. The oil-tubes are either wanting, or one in the intervals and two outside of the ribs. On the commissure are numerous grooves but the oil-tubes appear to be wanting or imperfect. I have *P. Newberryi* from Frisco. The fruit varies greatly.

The fruit of *P. Nevadaense* is glabrous; varies from oval to narrowly oblong, always emarginate at base in my specimens -- MARCUS E. JONES, *Salt Lake City*.

NABALUS ROANENSIS, n. sp.—Stem simple (3 to 12 inches high), hirsute sparingly, and on the veins on the under side of the leaves and the peduncles abundantly, with long, transparent hairs; heads in short axillary racemes forming a close racemed panicle; leaves $1\frac{1}{2}$ to 2 inches long, triangular halberd shaped, acuminate, coarsely toothed, on slender petioles, the lower 2 or 3 inches long, and winged above; involucre 10 to 13 flowered, of 7 to 10 light green linear scales, with dark obtuse tips, hairy in a line along the middle, and 3 or 4 dark green, triangular ovate, bract-like, densely hairy ones, at base; pappus straw color.

The leaves resemble those of *N. alatus*, the flowers are somewhat like those of *N. nanus*.

Found sparingly on the summit of Roan mountain, N. C., growing in the clefts of precipices — J. W. CHICKERING.

THE GAZETTE FOR 1881.—This number closes Vol. V, and very soon No. 1 of Vol. VI will appear. We take this opportunity of urging our friends to renew their subscriptions at once and to aid us in obtaining as many new ones as possible. The long lists of botanists in our Directories shrink to a very small per cent. upon the pages of our subscription book. For the credit of American Botany we ought to be able to generously support two modest journals.